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Two new species of *Spadicoides* and *Sporidesmiella* from Yucatán, Mexico

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Abstract — *Spadicoides sylvatica* sp. nov. and *Sporidesmiella mammillata* sp. nov., both collected on decaying plant material in a Mexican dry tropical forest, are described and illustrated. *Spadicoides sylvatica* is distinguished by its ovate to obclavate, 3–4-septate, smooth, golden brown to brown conidia. *Sporidesmiella mammillata* is characterized by conidia that are solitary acrogenous, obclavate to fusiform, sub-rostrate, 4–7-distoseptate, smooth, and golden brown.

Key words — asexual fungi, systematics, tropical fungi

Introduction

Saprobic dematiaceous hyphomycetes are highly diverse on plant material in tropical forests, where many new genera or species have recently been discovered (e.g., Castaneda Ruiz et al. 2009, 2012; Heredia et al. 2013, 2014; Zhang et al. 2009, 2011). During a mycological survey of fungi associated with decaying plant material from a Mexican dry tropical forest, two interesting fungi were collected that showed remarkable differences from all previously described *Spadicoides* and *Sporidesmiella* species. The two fungi are described here as new.

Materials & methods

Samples of plant debris (twigs, bark, leaves, and petioles) were collected in paper bags. In the laboratory the samples were placed in Petri dish moist chambers and stored in a 170 L polystyrene box with 200 mL sterile water plus 2 mL glycerol at 25°C for 30 days (Castañeda-Ruiz 2005). During this period, the samples were examined for the presence of conidial fungi. Slides were prepared in polyvinyl alcohol and lactic acid. Measurements were made at a magnification of ×1000. Micrographs were obtained with a Nikon eclipse 80i microscope equipped with bright field and Nomarski interference optics. The type specimens are deposited in the Herbarium of the Instituto de Ecología A. C., Xalapa, Mexico (XAL).

Taxonomy

Spadicoides sylvatica Heredia, R.F. Castañeda & R.M. Arias, **sp. nov.** FIG. 1A–C
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Differs from *Spadicoides yunnanensis* by its ovate to obclavate, 3–4-septate, longer, and narrower conidia.

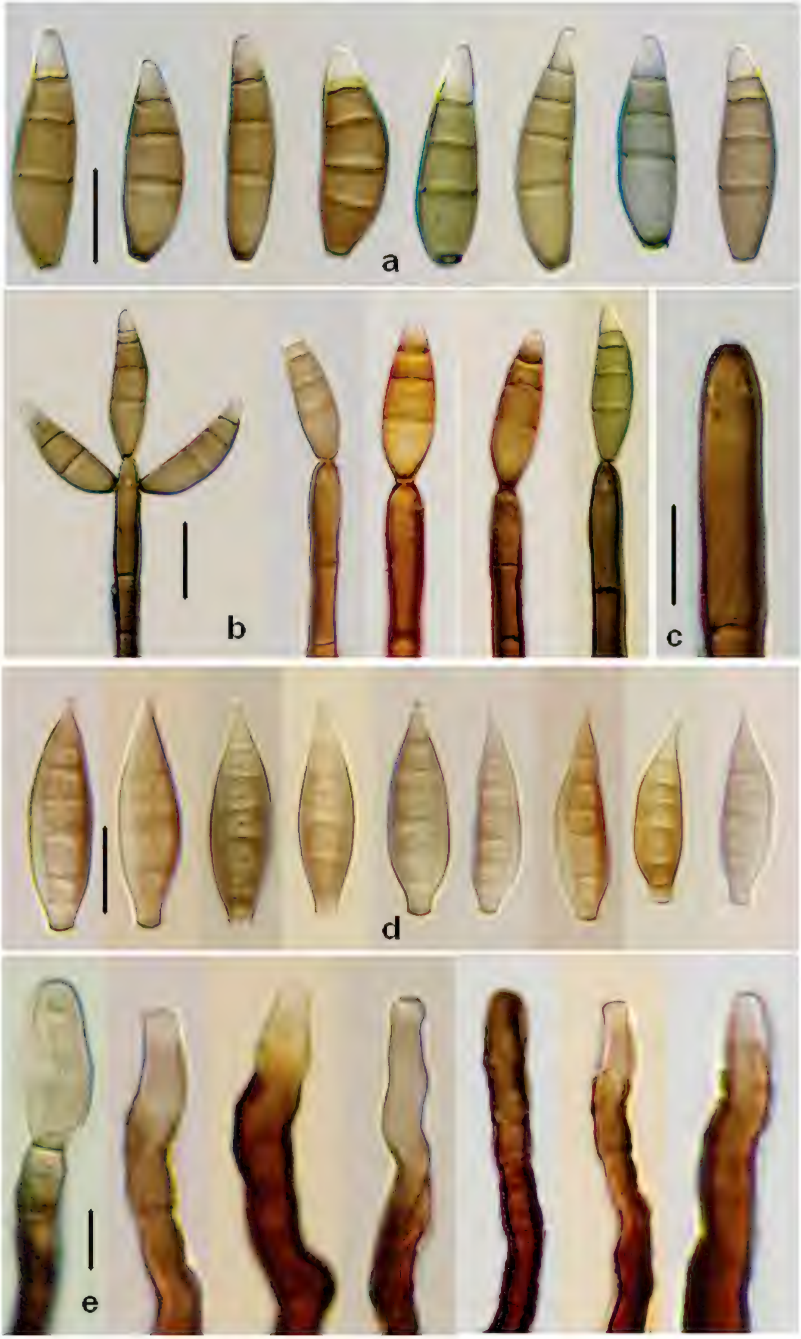
TYPE: Mexico, Yucatán State, Oxkutzcab municipality, Kaxil Kiuic Biocultural Reserve, 20°17′N 89°23′W, dry tropical forest, on decaying twig, 28 January 2014, coll. G. Heredia (**Holotype**: XAL CB1687).

ETYMOLOGY: *sylvatica*, refers to woodland or forest.

COLONIES on the natural substrate effuse, hairy, dark brown to brown. Mycelium mostly immersed, composed of septate, branched, brown, smooth hyphae. CONIDIOPHORES differentiated, mononematous, simple, erect, straight, 5–8-septate, smooth, dark brown, 180–220 × 6–9 µm. CONIDIOGENOUS CELLS polytretic, integrated, terminal and intercalary, cylindrical, brown, 13–28 × 5–6.5 µm. CONIDIA solitary, acropleurogenous, ovate to obclavate, obtuse at the apex, truncate at base, 3–4-septate, smooth, brown, apical cells very pale brown and verruculose, 22–32 × 7–8 µm.

NOTE: *Spadicoides* (Hughes 1958) is distinguished by differentiated erect, straight or flexuous, unbranched conidiophores with polytretic, terminal and/or intercalary conidiogenous cells that produce solitary, cylindrical, globose, obclavate to irregular, euseptate, pigmented conidia. Thus far, 36 species have been accepted in the genus (Xia et al. 2013). Only one species is similar to *S. sylvatica*, *S. yunnanensis* L.G. Ma & X.G. Zhang, which differs by its conidia, which are obpyriform to ovoid, 2–3-septate, smooth, brown, shorter, and wider (18.5–28 × 6.5–10 µm) and have rounded or acute, hyaline, smooth apical cells (Ma et al. 2010).

FIG. 1. ***Spadicoides sylvatica*** (holotype, XAL CB1687). a. Conidia. b. Conidiogenous cells and conidia. c. Conidiogenous cell. ***Sporidesmiella mammillata*** (holotype, XAL CB1686). d. Conidia. e. Conidium and conidiogenous cells. Scale bars = 10 µm.


a
b
c
d
e

Sporidesmiella mammillata Heredia, R.F. Castañeda & R.M. Arias, **sp. nov.**

MycoBank MB812923 Figs 1d–e, 2d

Differs from *Sporidesmiella pseudoseptata* by its shorter conidia with 4–7 distosepta (mostly 6-distoseptate) and a mammillate apical cell.

Type: Mexico, Yucatán State, Oxkutzcab municipality, Kaxil Kiuic Biocultural Reserve, 20°17′N 89°23′W, dry tropical forest, on decaying twig, 28 January 2014, coll. G. Heredia (**Holotype**: XAL CB1686).

Etymology: Latin, *mammillata*, referring to the breast-like conidial apical cell.

Colonies on the natural substrate effuse, hairy, dark brown to black. Mycelium immersed, composed of septate, branched, brown, smooth, 1–2.5 µm diam. Conidiophores differentiated, mononematous, erect, flexuous or slightly geniculate, with 4–10-enteroblastic percurrent extensions, dark brown or black, paler at the end, smooth, 80–220 × 5–11 µm. Conidiogenous cells monoblastic, cylindrical, integrated, indeterminate, with several enteroblastic percurrent extensions, pale brown to brown. Conidial secession schizolytic. Conidia solitary, acrogenous, obclavate to fusiform, mammiform at the apex, 4–7-distoseptate (mostly 6-distoseptate), smooth, golden brown, 23–32 × 6.5–8 µm.

Note: Kirk (1982) established *Sporidesmiella* with *S. claviformis* as type; the genus is characterized by conidia that are solitary, acrogenous, mostly distoseptate (some species with a proximal basal euseptum), pale olivaceous brown or subhyaline and produced by a monoblastic, terminal, integrated, indeterminate, enteroblastic percurrent elongated conidiogenous cell. In the recent key to accepted *Sporidesmiella* species by Ma et al. (2012), of the six species that can be compared with *S. mammillata* — *S. archidendri* Jian Ma & X.G. Zhang, *S. ciliaspora* W.P. Wu, *S. fusiformis* W.P. Wu, *S. machili* Jian Ma & X.G. Zhang, *S. pseudoseptata* (M.B. Ellis) Subram., *S. verruculosa* W.P. Wu — all clearly differ (see Table 1, Fig. 2).

Table 1. Comparison of *Sporidesmiella mammillata* and similar species.

Species	Conidial size (µm)	No. of Distosepta
S. archidendri	100–160 × 13–17	19–29
S. ciliaspora	45–55 × 8–9	9–19
S. fusiformis	64–80 × 12–13	14–17
S. machili	57–110 ×7.5–10	9–15
S. mammillata	**23–32 × 6.5–8**	**4–7**
S. pseudoseptata	35–56 × 7–8	5–8
S. verruculosa	85–95 × 15–21	17–18

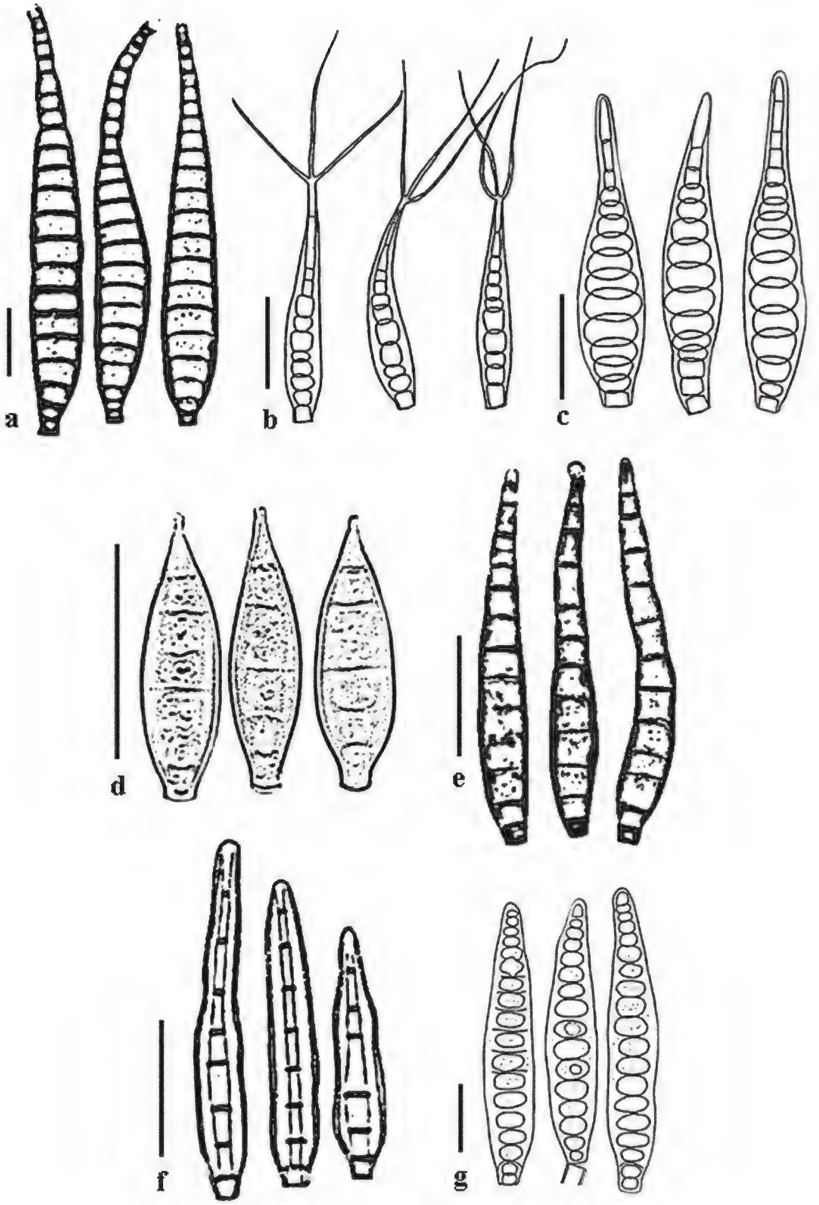


Fig. 2. *Sporidesmiella* representative conidia.
a. *S. archidendri*. b. *S. ciliaspora*. c. *S. fusiformis*. d. *S. mammillata*.
e. *S. machili*. f. *S. pseudoseptata*. g. *S. verruculosa*. Scale bars = 20 µm.

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